

REMARKS**A Status of the Claims**

Claims 5-11 , 76, and 77 are pending. Currently, claims 5-8, 76, and 77 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP 10287753 A ("JP '753"), in view of U.S. Patent No. 6,114,495 to Kolstad ("Kolstad"). Claims 9 and 10 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP '753 in view of Kolstad, and in further view of U.S. Patent No. 6,174,62 to Matsui ("Matsui"). Claim 11 stands rejected under JP '753, in view of Kolstad, Matsui, and the Wellington Sears Handbook of Industrial Textiles.

In this paper, claim 6 has been amended to correct a minor typographical error. No new matter has been added by this amendment.

B. Applicant's Claims Are Patentable Over the Cited References**1. Claims 5-8, 76, and 77**

Applicant respectfully traverses the rejection of claims 5-8, 76, and 77 under 35 U.S.C. §103(a) as allegedly being unpatentable over JP '753, in view of Kolstad. Briefly, the combination of references proposed by the Office Action relies on impermissible hindsight reconstruction. Accordingly, the rejection of these claims should be withdrawn. See MPEP §2145.

The multifilament yarn of the present invention is characterized in that it is prepared from lactic acid monomers wherein at least 98 mol % of the lactic acid monomers is the L-isomer. As described in the present specification (c.g, see ¶[0075]), the polymer becomes amorphous when the proportion of the D-isomer increases and crystal orientation is inhibited in

the spinning and drawing steps, thereby making the properties of the fiber obtained poor. In particular, the tensile strength is extremely degraded while excessively increasing the contraction ratio in boiling water to make practical application of the fiber impossible. From the experimental results described in Examples 6 and 7 in Table 2-3, the multifilament prepared from lactic acid monomers wherein 96 mol % of the lactic acid is an L-isomer (Example 7) shows 4.38cN/dtex of tensile strength and 14.8% of the contraction ratio in boiling water, but the multifilament of the present invention prepared from lactic acid monomers wherein 98.7 mol % of the lactic acid is an L-isomer (Example 6) shows 4.43cN/dtex of tensile strength and 9.8% of the contraction ratio in boiling water.

Thus, Applicant has clearly demonstrated that the tensile strength and the contraction ratio in boiling water are improved by increasing L-isomer content to at least 98%. Applicant emphasizes again that the properties of the multifilament of polylactic acid are largely changed when the L-isomer content increases to at least 98%.

JP '753 describes the polylactic acid prepared from L-isomer and discloses that the polylactic acid can be applied to fibers. However, while JP '753 appears to mention L-isomer homopolymers (¶[0018]), it also states that either L-isomer and/or D-isomer can be used (Abstract). Because JP '753 contemplates combining L- and D-isomers in any proportion in forming its lactic acid-based compositions, there are, in principle, an infinite number of different possible compositions that can be formed by adjusting the relative amounts of L- and D-isomer.

The Office Action attempts to combine JP '753's mere disclosure of an L-isomer homopolymer with the discussion in Kolstad concerning melt-flow index and lactide monomer removal. However, it does not appear to Applicant that JP '753 or Kolstad recognizes that polylactic acid compositions with an L-isomer concentration > 98% would produce such

improvements in tensile strength and the contraction ratio in boiling water, as demonstrated in Applicant's specification. Thus, the Office Action is picking one possible polylactic acid polymer (i.e., L-isomer homopolymer) out of an infinite possible combinations and claiming that it would have been obvious to process such a polylactic acid polymer in accordance with Kolstad to arrive at Applicant's inventive multifilament yarn, which has unexpected improvements in tensile strength and contraction ratio in boiling water.

This proposed combination appears to be the result of impermissible hindsight reasoning. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 5-8, 76, and 77.

2. Claims 9-10

Applicant respectfully traverses the rejection of claims 9 and 10 as allegedly being unpatentable over JP '753, in view of Kolstad, and in further view of Matsui. Again, it appears that the Office Action has relied upon impermissible hindsight reconstruction to arrive at Applicant's claims.

The process for producing a. polylactic acid multifilament of the present invention is not merely melt fiber spinning and drawing of the polylactic acid. As described in ¶¶ [0101]-[0104] of the present specification, the process is industrially achieved by using the polylactic acid having the specific relative viscosity, Sn Con tent, L-isomer content, and monomer content, by spinning it at a speed in the range of 3,000 m/min to 5,000 m/min, and by drawing it at a draw magnification factor of 1.3 times or more at a temperature in the range of 100 to 125°C. For example, tensile strength and birefringence index are closely related to the orientation of the fibers, and crystal orientation becomes insufficient at a spinning speed of less than 3,000 m/min

as described in ¶[0102] of the present specification, thereby only a fiber having a low tensile strength and a low birefringence index even if drawn.

Referring to Table 2-6 of the present specification, Comparative Example 15 satisfies the requirements (spinning speed, drawing temperature, set temperature) of Claim 9. However, the corresponding tensile strength and birefringence are low, since the drawing ratio is low. Comparative Example 16 does not satisfy spinning speed due to low spinning speed only by 200 m/min of Claim 9, a tensile strength and birefringence are low. Comparative Example 17 does not satisfy drawing temperature only by 10°C of Claim 9, a tensile strength and birefringence are low. From these results, even if only one requirement is not satisfied, multifilament yarn having the claimed properties is not obtained. Thus, Applicant maintains that there is a synergistic effect which occurs from the optimization of these selected parameters.

Nowhere does JP '753, Kolstad, or Matsui teach, disclose, or suggest this synergy. Accordingly, Applicant maintains that the Office Action's attempts to cobble together the teachings of JP '753, Matsui, and Kolstad result from impermissible hindsight reconstruction, and not from any proper motivation.

c. Claim 11

In the foregoing, Applicant argued that there was no proper motivation to combine JP '735 with Kolstad. Applicant does not see how the further combination of these two references with Matsui and the Wellington Sears Handbook alleviates these deficiencies. Accordingly, Applicant respectfully requests the reconsideration and withdrawal of the rejection of claim 11.

CONCLUSION

Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims and allowance of this application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 3620-4014. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 3620-4014. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

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By:

Respectfully submitted,
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